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One commercially available flow cytometer which relies on a hydrodynamically focused fluid system is known as the FACScanTM instrument sold by Becton Dickinson Immunocytometry Systems, San Jose, Calif. The FACScanTM instrument rapidly analyzes cells on the basis of fluorescence and light scatter properties. Analysis is accomplished by introducing cells in a suspension to the center of a focused liquid stream thus causing them to pass, one at a time, through a focused light from a high powered laser. Each cell is individually characterized by its light scatter signals and by the intensity and color of fluorescence emitted while it is illuminated. This system is described in U.S. Pat. No. 4,844,610 issued Jul. 4, 1989 to North, U.S. Pat. No. 5,030,022 issued Jul. 9, 1991 to North and U.S. Pat. No. 5,040,890 issued Aug. 20, 1991 to North.

IN THE CLAIMS

Please amend the claims, without prejudice or disclaimer, as indicated below (A redlined version of each of the amended claims accompanies the present Amendment):

1. (Three Times Amended) A flow cytometry apparatus for the detection of particles from a plurality of samples comprising:

means for moving the plurality of samples comprising particles from a plurality of respective source wells into a fluid flow stream, said means for moving the plurality of samples comprising a pump;

means for introducing a separation gas between each of said plurality of samples in said fluid flow stream; and

a flow cytometer for hydrodynamically focusing said fluid flow stream and selectively analyzing said particles in each of said plurality of samples as said fluid flow stream passes through said flow cytometer.

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2. The flow cytometry apparatus of claim 1, wherein said means for moving said plurality of samples further comprises an autosampler.

3. The flow cytometry apparatus of claim 2, wherein said autosampler includes a probe and said flow cytometry apparatus includes a means for exposing a probe tip of said probe to a jet of gas to remove liquid from said probe tip.

4. The flow cytometry apparatus of claim 2, wherein said autosampler includes a probe having a conical tip.

5. The flow cytometry apparatus of claim 2, wherein said autosampler includes a hydrophobic probe.

6. The flow cytometry apparatus of claim 5, wherein said probe comprises a hydrophobic material.

7. The flow cytometry apparatus of claim 5, wherein said probe is coated with a hydrophobic material.

D³ 9. (Twice Amended) The flow cytometry apparatus of claim 10, wherein a portion of said fluid flow stream passing through said peristaltic pump is contained within a high speed multi-sample tube.

10. The flow cytometry apparatus of claim 1, wherein said pump comprises a peristaltic pump.

11. The flow cytometry apparatus of claim 10, further comprising a single length of tubing extending from said autosampler to said flow cytometer.

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12. The flow cytometry apparatus of claim 11, wherein said single length of tubing comprises a high speed multi-sample tube.

13. (Three Times Amended) The flow cytometry apparatus of claim 12, wherein said high speed multi-sample tube comprises a poly vinyl chloride tube.

14. (Three Times Amended) The flow cytometry apparatus of claim 12, wherein said high speed multi-sample tube comprises a poly vinyl chloride tube having an inner diameter about 0.02 inches and a wall thickness of about 0.02 inches.

15. The flow cytometry apparatus of claim 1, wherein said separation gas comprises air.

16. The flow cytometry apparatus of claim 1, wherein said plurality of samples are homogenous.

17. The flow cytometry apparatus of claim 1, wherein said plurality of samples are heterogeneous.

18. The flow cytometry apparatus of claim 1, wherein said particles comprise biomaterials.

19. The flow cytometry apparatus of claim 18, wherein said biomaterials are fluorescently tagged.

20. The flow cytometry apparatus of claim 1, further comprising a well plate including said plurality of respective source wells.

21. The flow cytometry apparatus of claim 20, wherein said well plate includes at

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least 96 source wells.

22. The flow cytometry apparatus of claim 20, wherein said well plate includes at least 384 source wells.

23. The flow cytometry apparatus of claim 20, wherein said well plate includes at least 1536 source wells.

24. The flow cytometry apparatus of claim 20, wherein said well plate includes wells having a conical shape.

25. The flow cytometry apparatus of claim 20, wherein said well plate is mounted in an inverted position.

26. (Amended) The flow cytometry apparatus of claim 1, further comprising a means for injecting a buffer fluid between adjacent samples in said fluid flow stream so that said adjacent samples are separated by two bubbles of separation gas and said buffer fluid located between said two bubbles of separation gas.

27. The flow cytometry apparatus of claim 1, wherein at least one of said plurality of samples includes a drug present therein.

46. (Amended) The flow cytometry apparatus of claim 1, wherein a portion of said fluid flow stream passing through said pump is contained within a tube having an internal diameter of 0.02 inches.

47. (Amended) The flow cytometry apparatus of claim 10, wherein a portion of said fluid flow stream passing through said peristaltic pump is contained within a tube having an internal diameter of 0.02 inches.
